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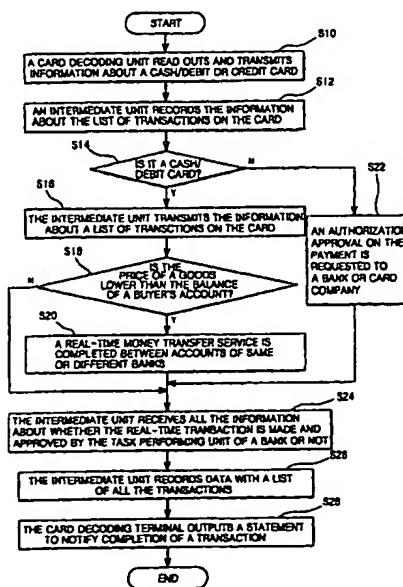
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## (54) Title: REAL-TIME CASH APPROVAL SYSTEM AND METHOD FOR PROCESSING THE SAME



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(57) Abstract: The invention relates to a real-time cash approval system and a method for performing real-time cash approval processes to carry on a money transfer device to a seller's account when a buyer purchases a goods on a cash/debit or credit card. The method of the present invention comprises the steps that: a card decoding terminal reads out information about any type of a cash/debit or credit card recorded and issued (or handled) by a variety of banks or credit card companies and transmits it to an intermediate unit, which then discriminates whether the balance of a card holder's banking account can fully cover the payment of a goods and carries on an immediate money transfer service from buyer's account to seller's if there is no problem in the transaction between both accounts, thereby making it possible to conveniently close dealings even before or after official working hours of banks and increase the number of shop and individual members to adopt the real-time cash approval system.

## REAL-TIME CASH APPROVAL SYSTEM AND METHOD FOR PROCESSING THE SAME

### BACKGROUND OF THE INVENTION

#### 5 FILED OF THE INVENTION

The present invention relates to a payment-on-a-card approving system and a method for processing the same, and more particularly to a real-time cash approval system and a method for processing the same, which can efficiently support all kinds of transactions made on cash/debit or credit card to make a real-time money transfer from purchaser's account to 10 seller's immediately when the former buys a goods from the latter by using a cash/debit or credit card.

### DESCRIPTION OF THE PRIOR ART

At present, financing companies like banks and credit card marketing companies 15 have distributed customers a magnetic stripe card with a magnetic recording medium embedded in a plastic card, so-called cash/debit card of banks or credit card of credit card marketing companies, with which a card holder can conveniently withdraw cash or buy a goods on credit before or after official working hours of banks end.

However, debit card has been currently used in a small number of affiliated member 20 shops at a high service charge of a card imposed on the member shops by about 1 to 2% with a difficulty in securing cash liquidity because an immediate transfer can not be made in dealings (an actual money transfer from the card on the payment will be completed one day later), so that there have been problems such as low preference, slow popularization and delayed growth in the number of affiliated individual and shop members. Besides, due to a 25 limit in the total amount of money available for one-time and one-day payment on the card and poor profit-making business performance of the card issuing banks, the card has been

simply used as a means to withdraw cash, having lost its original purpose of a directly payable means in dealings.

In addition, depending on a card holder's creditability, there is a difference in the maximum limit of money available on the daily basis.

5 In comparison with the debit card, a credit card company imposes a relatively higher service charge to the affiliated shop members along with its inconvenience in delay of money transfer service, not immediately approved money transfer from the credit card (An actual money transfer service will be completed in two or three days later).

10 Currently, cash/debit cards have been also issued by a number of banks to most of their customers, who also experience troubles in 24-hour cash withdrawal and inter-account money transfer services.

15 In order to solve a problem of carrying cash, reduce unnecessary service charges among affiliated member shops, banks and credit card companies and increase their profits through popular utilization of the cards, it is necessary to develop an efficient money circulation system in all sorts of transactions with a variety of cards, cash/debit or credit cards.

## SUMMARY OF THE INVENTION

Therefore, it is an object of the present invention to provide a real-time cash approval system with a card decoding terminal (so-called, automated teller machine) and an intermediate unit (so-called, a host server for all banking accounts), both of which support performance of cash approval processes by making a real-time money transfer service between accounts of same or different banks immediately after a card holder purchases a goods, thereby minimizing cash circulation and swiftly completing all the necessary cash approval and money transaction steps.

25 It is another object of the present invention to provide a method for performing real-time cash approval processes comprising steps: that information about card holder's current

financial status available by a cash/debit or credit card is read out by a card decoding terminal; that the balance of card holder's banking account is compared with the price of a goods; and an amount of money payable to the goods is immediately transferred from purchaser's account to seller's, thereby making it possible to conveniently close dealings even 5 before or after official working hours of banks by immediately completing money transfer steps between accounts, and increase the number of shop and individual members to adopt the real-time cash approval system.

In order to accomplish the aforementioned object of the present invention, there is provided a real-time cash approval system of a cash/debit or credit card comprising:

- 10 a card decoding terminal for transmitting information about card holder's balance of an account transferable to another account and a list of transactions to be made and approved on the cash/debit or credit card on the real-time basis;
- 15 a task performing unit of a bank for carrying on all real-time money transfer services between same or different banks; and
- 20 an intermediate unit for recording and intermediating the list of transactions to be approved on cash/debit or credit card from the card decoding terminal to the task performing unit of a bank, requesting an immediate money transfer between same or different banks on the real-time basis to establish a dealing between a purchaser and a seller and outputting all the resultant data approved by the task performing unit of a bank back to the card decoding terminal, or for recording and transmitting information about credit card holder's financial status and a list of all the dealings to be made on the credit card to a task performing unit of a credit card company and outputting all the resultant data approved by the task performing unit of the credit card company back to the card decoding terminal.

In order to accomplish another object of the present invention, there is provided a 25 method for processing a real-time cash approval system in transactions for the payment of a goods made on a cash/debit or credit card, the method comprising the steps that:

a card decoding terminal reads out and transmits information about a cash/debit or credit card and a list of transactions to be made and approved on the cash/debit or credit card;

an intermediate unit records the information about the card and the list of transactions transmitted from the card decoding terminal;

5 the intermediate unit discriminates whether the card used in the transaction is a cash/debit or credit card;

the intermediate unit transmits the information about the card, the list of transactions to be made on the card and an acknowledge statement of a money transfer between same or different banking accounts to a task performing unit of a bank of a cash/debit card;

10 the task performing unit of a bank discriminates whether the price of a goods to be purchased on the cash/debit card is lower than the balance of card holder's banking account;

the task performing unit of a bank carries on a real-time money transfer services between same or different banking accounts on the real-time basis for the payment approved thereby;

15 the intermediate unit receives all the data about the real-time transactions made between banking accounts and approved by the task performing unit of a bank;

the intermediate unit records data with a list of all the completely approved transactions on the cash/debit card of the bank; and

20 the card decoding terminal prints out the list of all the information approved on the cash/debit card to notify completion of the transactions.

It is preferable in a real-time cash approving method of a credit card that the intermediate unit transmits the information on the credit card and all the transactions made on the credit card to a task performing unit of a credit card company, and receives and transmits back all the information about cash approval from the task performing unit of the card company to the card decoding terminal.

## BRIEF DESCRIPTION OF THE DRAWINGS

Objects and aspects of the invention will become apparent from the following description of an embodiment with reference to the accompanying drawings in which:

5 Fig. 1 is a block diagram for illustrating a real-time cash approval system in accordance with a first embodiment of the present invention; and

Fig. 2 is a flowchart for illustrating a method for sequentially performing the processes of real-time cash approval.

## DETAILED DESCRIPTION OF THE PRESENT INVENTION

10 Objects and aspects of the present invention will become apparent from the following detailed description of a preferred embodiment with reference to the accompanying drawings. At this time, there is a precondition in the real-time cash approval system and the method for processing all the real-time cash approval steps that all the money transfers have been made possible between same or different banks on the 24hour basis.

15 Fig. 1 is a block diagram for illustrating a real-time cash approval system in accordance with the present invention, comprising: a card decoding terminal 20 installed in a card affiliated shop member; an intermediate unit 30; and a task performing unit 40 of a bank or a task performing unit 50 of a credit card company to perform all the tasks to make a real-time money transfer between same or different banks.

20 The card decoding terminal 20 of the present invention reads out and transmits information about a cash/debit or credit card on which a real-time money transfer can be made and a list of transactions to be approved on the cash/debit or credit card, and finally receives data from the intermediate unit 30.

25 The intermediate unit 30 of the present invention records a list of transactions to be approved in cash from the card decoding terminal 20, intermediates with the task performing unit of a bank 40 to request the real-time transactions to be made between accounts of same

or different banks on the total amount of money involved in a dealing between a buyer and a seller, and outputs the data approved by the task performing unit of a bank 40 back to the card decoding terminal 20. Also, the intermediate unit 30 plays a role to record and transmit information about the credit card and a list of transactions made on the credit card to the task performing unit 50 of the credit card company 50, and output the data approved by the task performing unit 50 of the credit card company back to the card decoding terminal 20.

Fig. 2 is a flowchart for illustrating a method for performing a real-time cash approval processes in accordance with the present invention. With reference to Figs. 1 and 2, the method for carrying out a real-time cash approval processes will be described in detail.

10 At first, the card decoding terminal 20 reads out information and list of desired transactions on cash/debit or credit card 10 and transmits them to the intermediate unit 30 (refer to S10).

Then, the intermediate unit 30 records the information and list of transactions on the cash/debit card transmitted from the card decoding terminal 20, and then discriminates 15 whether the card is a cash/debit or credit card. If it is a cash/debit card, the intermediate unit 30 writes an acknowledgement statement about the information and list of transactions on the card and the money transfer services between accounts of same and different banks, and then sends them to the task performing unit of a bank 40 (refer to S12 through S16).

At this time, the task performing unit of a bank 40 discriminates whether the price of 20 a goods is lower than balance of the card holder's account. If so, a real-time money transfer between accounts is authorized on payment for the goods. At this time, if both of buyer and seller have accounts in the same bank, an immediate money transfer will be made between their own accounts. If not, a money transfer will be authorized between different banks connected through an electronic joint network. Furthermore, if the price of the goods is 25 greater than the balance of the buyer's account, the task performing unit of a bank 40 confirms that authorization of a money transfer service will be declined between two accounts

(refer to S18 through 20).

Then, the intermediate unit 30 receives data about the real-time money transfer service approved between accounts by the task performing unit of a bank 40 and records all the information about a list of transactions made on the cash/debit card (refer to S21 through S26).

Finally, the intermediate unit 30 transmits the information about all the approved transactions to the card decoding terminal 20 to notify completion of all the transactions (refer to S28).

In the method for carrying out a real-time cash approval processes, if the information transmitted to the card decoding terminal 20 relates to a credit card, the intermediate unit 30 transmits information and list of transactions on the card to the task performing unit 50 of the credit card company according to a conventional cash approval procedure of the credit card and then receives all the information approved by the task performing unit 50 of the credit card company.

In other words, according to the real-time cash approval processes of the present invention, the card decoding terminal reads out information about any type of a cash/debit or credit card recorded and issued (or handled) by a variety of banks or credit card companies and transmits it to the intermediate unit, which then discriminates whether the balance of a card holder's banking account can fully cover the payment of a goods and carries on an immediate money transfer service from buyer's account to seller's if there is no problem in the transaction between both accounts.

As described above, there is an advantage in the real-time cash approval system of the present invention in that the total amount of money transferable is determined by the balance of card holder's banking account at the exact moment that the card holder purchases a goods of any price, even an expensive one that exceeds the one time or one day transaction limit of the card, differently from the conventional method in which an additional withdrawal

of cash or check is often needed to fully meet the payment of the expensive goods due to the one time or one day money transfer service, thereby improving the card holder's conveniences in use by eliminating the needs of frequently withdrawing or carrying a great deal of cash or check.

5 In addition, there are also advantages in the real-time cash approval system of the present invention in that an immediate money transfer service is provided on payment of a goods purchased on a cash/debit or credit card to help the affiliated shop members to secure flexibility of monetary circulation, and that the service charge of a bank gets lower than that of the conventional debit card to minimize a financial loss caused by holidays or consecutive 10 holidays as well as to maximize profit-makings of affiliated shop members.

Also, there is further an advantage in the real-time cash approval system of the present invention in that a real-time money transfer service of banks is provided between accounts to reduce bank tellers' workload and the related labor cost, prevent an increase in the card handling service charge and unnecessary outflow of money from accounts, increase 15 deposit of banks into newly opened accounts and maintain excellent customers of banks.

Furthermore, there is still a advantage in the real-time cash approval system of the present invention in that the real-time cash approving steps are performed to the payment of a goods purchased on a cash/debit or credit card to reduce actual cash circulation and extend the lifetime of currency circulating in markets.

Having described a specific preferred embodiment of the invention, it is to be understood that the invention is not limited to the precise embodiment, and that various changes and modifications may be effected therein by one skilled in the art without departing from the scope or spirit of the invention as defined in appended claims.

What is claimed is:

1. A real-time cash approval system of a cash/debit or credit card comprising:

a card decoding terminal for transmitting information about card holder's balance of an account transferable to another account and a list of transactions to be made and approved  
5 on the cash/debit or credit card on the real-time basis;

a task performing unit of a bank for carrying on all real-time money transfers between same or different banks; and

an intermediate unit for recording and intermediating the list of transactions to be approved on cash/debit or credit card from the card decoding terminal to the task performing  
10 unit of a bank, requesting an immediate money transfer between same or different banks on the real-time basis to establish a dealing between a purchaser and a seller and outputting all the resultant data approved by the task performing unit of a bank back to the card decoding terminal or for recording and transmitting information about credit card holder's financial status and a list of all the dealings to be made on the credit card to a task performing unit of  
15 the credit card company and outputting all the resultant data approved by the task performing unit of the credit card company back to the card decoding terminal.

2. A method for processing a real-time cash approval system in transactions for the payment of a goods made on a cash/debit or credit card, the method comprising the steps that:

20 a card decoding terminal reads out and transmits information about a cash/debit or credit card and a list of transactions to be made and approved on the cash/debit or credit card;

an intermediate unit records the information about the card and the list of transactions transmitted from the card decoding terminal;

25 the intermediate unit discriminates whether the card used in the transaction is a cash/debit or credit card;

the intermediate unit transmits the information about the card, the list of transactions

to be made on the card and an acknowledge statement of a money transfer between same or different banking accounts to a task performing unit of a bank of a cash/debit card;

the task performing unit of a bank discriminates whether the price of a goods to be purchased on the cash/debit card is lower than the balance of card holder's banking account;

5 the task performing unit of a bank carries on a real-time money transfer services between same or different banking accounts on the real-time basis for the payment approved thereby;

the intermediate unit receives all the data about the real-time transactions made between banking accounts and approved by the task performing unit of a bank;

10 the intermediate unit records data with a list of all the completely approved transactions on the cash/debit card of the bank; and

the card decoding terminal prints out the list of all the information approved on the cash/debit card to notify completion of the transactions.

15 3. The method, as defined in claim 2, wherein, if it is a credit card, the intermediate unit transmits the information on a credit card and all the transactions to be made on the credit card to a task performing unit of a credit card company, and receives and transmits all the information about transactions approved by the task performing unit of the card company back to the card decoding terminal.

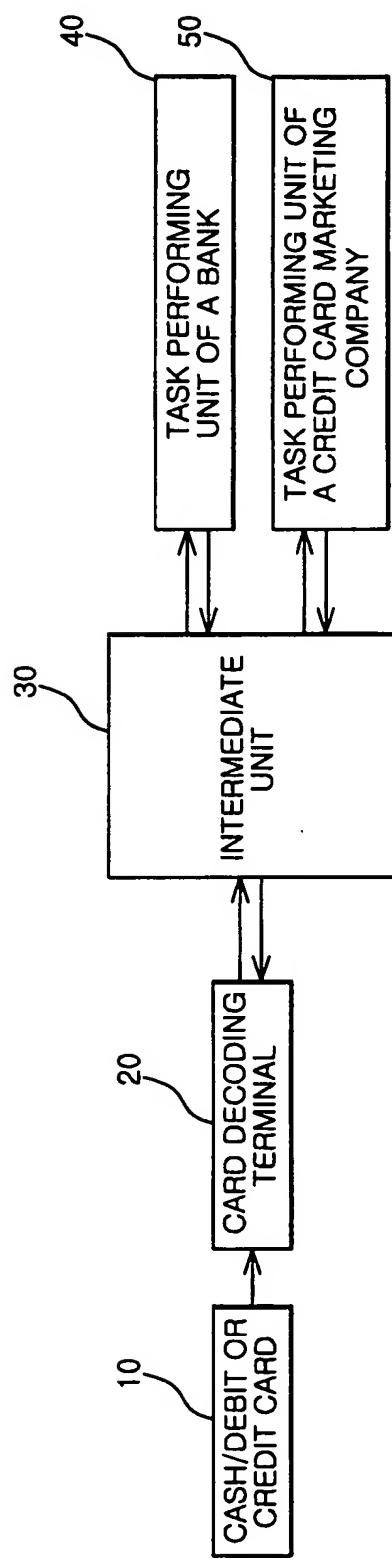
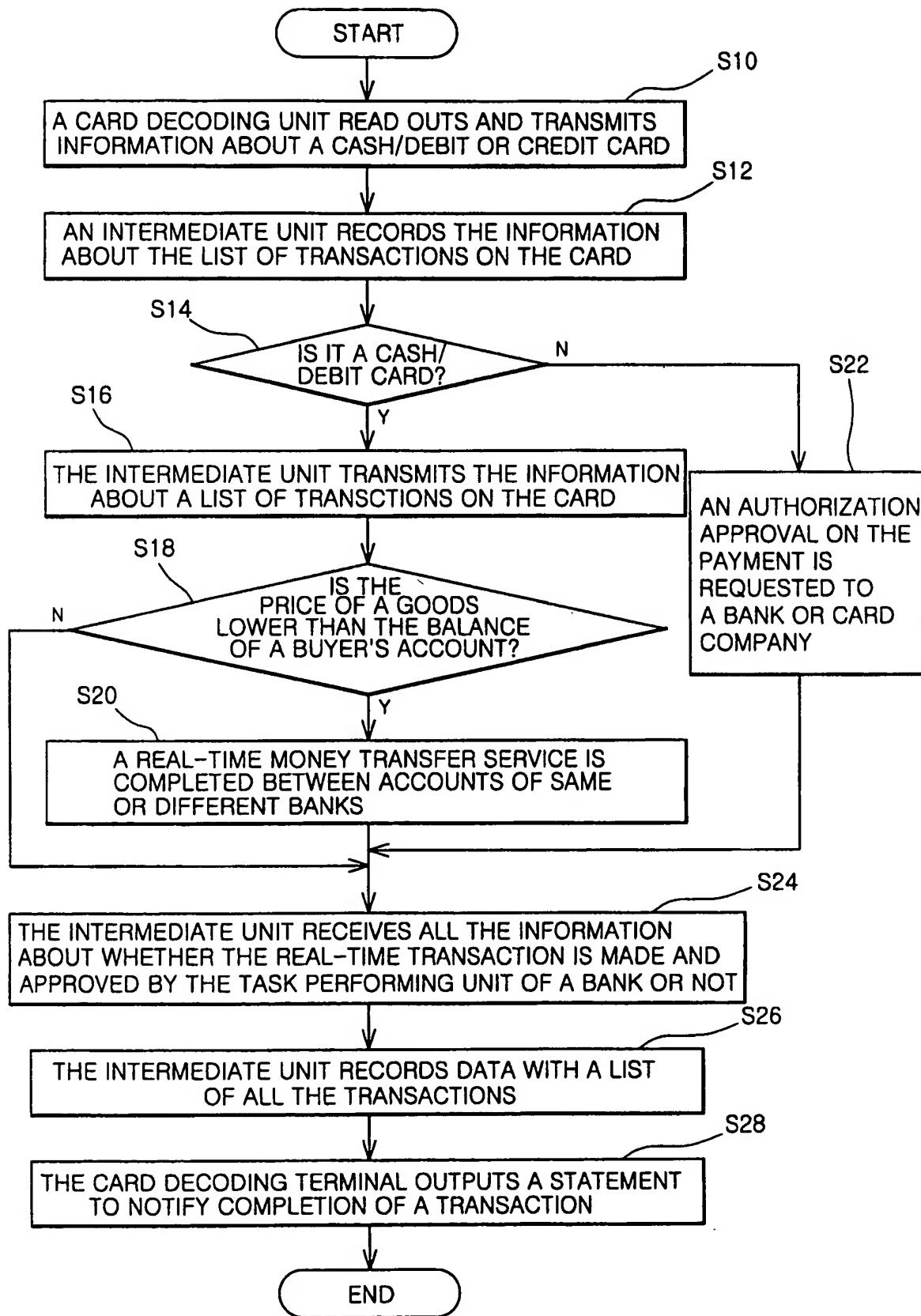


FIG. 1



**FIG. 2**

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/KR 00/00488

## CLASSIFICATION OF SUBJECT MATTER

IPC<sup>7</sup>: G 07 F 19/00

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC<sup>7</sup>: G 07 F 7/00, 7/08, 7/10, 7/12, 19/00

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5850552 A (MUFTIC) 15 December 1998 (15.12.98) abstract; column 13, line 40 - column 20, line 17; claims 1-38; fig. 1-32.	1-3
A	US 6002767 A (KRAMER) 14 December 1999 (14.12.99) abstract; column 37, line 5 - column 61, line 15; claims 1-23; fig. 1A-1C. ----	1-3

Further documents are listed in the continuation of Box C.

See patent family annex.

- Special categories of cited documents:
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- ..Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
- ..&\* document member of the same patent family

Date of the actual completion of the international search

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Date of mailing of the international search report

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Kohlmarkt 8-10; A-1014 Vienna

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STANGER

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**INTERNATIONAL SEARCH REPORT**

International application No. PCT/KR 00/00488
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The document US-A-5,850,442 discloses a network of users and servers of a type found in the Internet system and extended to permit secure electronic commercial transactions to be accomplished. The network is extended to include a public key infrastructure and electronic transactions can be securely performed utilizing smart token technology. Conduct of a variety of common electronic business transactions over such an extended network is provided.

The document US-A-6,002,767 discloses a secure transmission of data between a plurality of computer systems over a public communication system, such as the Internet. Secure transmission of data is provided from a customer computer system to a merchant computer system, and for the further secure transmission of payment information regarding a payment instrument from the merchant computer system to a payment gateway computer system. The payment gateway system evaluates the payment information and returns a level of authorization of credit via a secure transmission to the merchant which is communicated to the customer by the merchant. The merchant can then determine whether to accept the payment instrument tendered or deny credit and require another payment instrument. An architecture that provides support for additional message types that are value-added extensions to the SET protocol is provided by a preferred embodiment of the invention. A server communicating bidirectionally with a gateway is disclosed. The server communicates to the gateway over a first communication link, over which all service requests are initiated by the server. The gateway uses a second communication link to send service signals to the server. In response to the service signals, the server initiates transactions to the gateway or presents information on an a display device.

**INTERNATIONAL SEARCH REPORT**  
Information on patent family members

International application No.  
PCT/KR 00/00488

Patent document cited in search report		Publication date	Patent family member(s)			Publication date
US	A	5850552	15-12-1998	CN	A	1146577
				EP	A2	740251
				EP	A3	740251
				JP	A2	8305577
				KR	B1	238330
US	A	6002767	14-12-1999	AU	A1	33992/97
				WO	A2	9749052
				WO	A3	9749052
				US	A	5812668
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